

### **REMARKS/ARGUMENTS**

Of claims 1-20 originally in the application, claims 4-9 and 14-19 stand withdrawn from consideration, per Examiner's comments, as being withdrawn to a non-elected species. By this Amendment, claims 1, 10, 11 and 20 are amended; claims 2, 3, 12 and 13 are cancelled without prejudice. Care has been taken to ensure that no new matter has been introduced into the amended claims. Reconsideration in view of the above amendments and the following remarks is respectfully requested.

#### **Drawings**

The drawings are objected to as not showing every feature of the claims, specifically, the plate flexibility "in a direction which is substantially parallel to the plane of the plate member." Claims 1 and 11 have been amended so as to remove this feature, and thereby to render moot this objection.

#### **Specification**

The abstract is objected to as including legal phraseology and as not concisely summarizing the salient features of the claimed invention. The Abstract has been amended in such a way as to meet these objections.

#### **Claim Objections**

Claims 1-10 are objected to as not including the indefinite article "an" immediately preceding "elongate support apparatus" [claim 1, line 2]. In claim 1, the phrase "elongate support apparatus" has been replaced with "at least one support member," thereby rendering this objection moot.

### **Claim Rejections – 35 USC 112**

Claims 1-3, 10-13, and 20 stand rejected under 35 USC 112, first and second paragraphs, as reciting the limitation "said at least one resilient member being flexible in a direction which is substantially parallel to the plane of the plate member." Claims 2, 3, 12 and 13 have been cancelled without prejudice. Claims 1 and 11 have been amended so as to recite the direction of flexing of the recited plate as being "in the plane of said plate member," thereby overcoming this objection.

Claims 1-3, 10-13 and 20 stand rejected under 35 USC 112, second paragraph. Specifically, claims 2 and 12 stand rejected as employing inconsistent terminology with regard to the "width" and "cross-section" of the support apparatus; claims 1, 10, 11 and 20 have been specified by the Examiner as including inconsistent terminology with regard to "a single engagement portion" and "at least one support engagement portion;" and claim 1 stands rejected as being unclear by employing the term "similar." Claims 2 and 12 stand rejected as being incomplete.

Of the above claims, claims 2, 3, 12 and 13 have been canceled without prejudice. Claims 1, 10, 11 and 20 have been amended in such a way as, *inter alia*, to take into account the above points of rejection, and are believed to overcome, *inter alia*, all points of rejection under 35 USC 112.

### **Claim Rejections – 35 USC 102**

Claims 1, 10, 11 and 20 stand rejected under 35 USC 102(b) as being anticipated by Gebelius. The Examiner states, *inter alia*, that "the at least one resilient member or collar 13 is disclosed as being flexible both in the plane of the plate member 10 and in planes parallel thereto," and that the reference thus reads on the claims.

In his patent, Gebelius states that when fins 10 are pressed on onto the pipe 13 *"because of their domed or dished shape, the fins twist and bend so as to allow the slots 16 to open sufficiently to receive the pipe"* (column 2, lines 25-27) and further, *"All the fins in the assembly of fins 10 and side members 15,15' are simultaneously flexed or buckled towards their opposite or convex domed configuration after having been inserted over the pipe"* (column 2, lines 41-44). It is thus respectfully submitted that collar 13, being connected to a dish-shaped springy plate need not yield specifically in the plane of the plate, (nor is this stated by Gebelius) especially since, in an at rest position, the plane of the plate is a dish-shaped plane, while that of the collar is probably flat. It is further submitted that in order to admit pipe 13 into the fin, the entire fin must distort, as per the above quote from Gebelius.

Claims 1 and 11 have been amended to clearly recite that the at least one engagement portion in the plate member includes a recess formed in an edge portion of the plate member, *"said recess having an outlet for admitting the support member, a flexible arm formed along a portion of the recess, terminating in a lateral protrusion protruding inwardly into said recess, thereby to constrict said outlet such that said recess outlet has a width that is less than the width of the support member."*

Furthermore, the flexible arm is recited as being operative *"in the presence of at least a predetermined lateral flexure force applied thereto to snap couple and decouple said plate member and the elongate support member, and further, in the absence of at least a predetermined lateral flexure force applied thereto, to prevent coupling or de-coupling of said plate member from the support member;"* and as being further operative *"to flex in a direction which is both lateral to the direction of coupling and de-coupling and in the plane of said plate member."*

These amendments are clearly based on the portion of the description from page 7, line 21 to page 8, line 8.

It is respectfully submitted that there are thus a number of patentable differences between the presently claimed invention and Gebelius. Among them are the following:

1. A recess for accommodating the support member, wherein the recess is formed at the edge of the plate member. Gebelius' recess is formed **centrally** such that the **entire fin** participates in the flexure.
2. A flexible arm which is formed along a portion of the recess. Such a feature is **absent** from Gebelius.
3. Flexure of the arm in the plane of the plate.

It should be emphasized that it is not merely the provision of a flexible arm, per se, which renders the presently claimed invention both novel and non-obvious over Gebelius. Gebelius discloses a convector, in which thermal transfer occurs between the pipe and the fins, and the fins are thus fairly small compared to the pipe, it further being necessary for the fins to be **centrally** mounted on the pipe. The support member in the present invention provided merely mechanical support to a stack of heat exchange plates in which heat exchange occurs by liquid media flowing across the plates and between them. In order to maximize the heat exchange taking place, it is necessary to maximize the surface area, and this results in the supporting member or members engaging the edges of the plates only. It also requires a fair degree of **rigidity** in the plates themselves (as opposed to the flexibility of the fins of Gebelius).

Accordingly, in the presently claimed invention, the only portion of the plate which flexes is the flexible arm which, as stated in the detailed description (page 7, lines 34-35) receives its flexibility by "by virtue of the provision of an elongate opening 121 located generally

tangentially to recess 112." In this manner it is clearly isolated from the remainder of the plate member, which is not specifically flexible, and certainly not in its plane.

It is thus respectfully submitted that claims 1 and 11, and claims 2 and 20, respectively dependent therefrom, are novel and patentable over Gebelius.

Claims 1-3, 10-13, and 20 stand further rejected under 35 USC 102(b) as being anticipated by Hille. As stated above, claims 2, 3, 12 and 13 have been cancelled without prejudice.

The Examiner states, *inter alia*, that Hille discloses "*flat plate members 3 including at least one support engagement portion in turn including at least one resilient member or lateral protrusion or "nose" 4, 5 and 7; and a recess configured to at least partially accommodate the cross section of the support apparatus or support members 1 and 5 as shown in the figure.*"

The patent to Hille is written in German. As far as Applicant has been able to ascertain, portions 4, 5 and 7 are "protruding noses" (the German word "*vorspringen*" is translated as "*protruding*"), and nowhere are these "noses" indicated as having any resilient qualities, or as being flexible in any way. In fact, Hille provides a solution for hanging plates from upper and lower supports 1 and 6, wherein the upper support 1 has a flange 2 which is used for engaging nose portion 4, once the plate has been **maneuvered** into position such that the recesses and the nose portions engage both the supports.

Contrary to Hille, amended claims 1 and 11 recite, in addition to the recess formed in an edge portion of the plate member, "*a flexible arm formed along a portion of the recess, terminating in a lateral protrusion protruding inwardly into said recess, thereby to constrict said outlet such that said recess outlet has a width that is less than the width of the support member.*"

Furthermore, the flexible arm is recited as being operative "*in the presence of at least a predetermined lateral flexure force applied thereto to snap couple and decouple said plate member and the elongate support member, and further, in the absence of at least a predetermined lateral flexure force applied thereto, to prevent coupling or de-coupling of said plate member from the support member*"

and being further operative "*to flex in a direction which is both lateral to the direction of coupling and de-coupling and in the plane of said plate member.*"

These amendments are clearly based on the portion of the description from page 7, line 21 to page 8, line 8.

It is respectfully submitted that Hille neither teaches nor indicates desirability of having a flexible arm as recited in amended claims 1 and 11, and is thus incapable of any type of snap coupling. Furthermore, as will be appreciated by one skilled in the art, Hille teaches a plate whose geometry is specifically determined by the requirement to be able to maneuver a plate which is inherently rigid, into position between two rigid supports.

It is thus respectfully submitted that claims 1 and 11, and claims 2 and 20, respectively dependent therefrom, are novel and patentable over Hille.

### **Conclusion**

In view of the foregoing amendments and remarks, Applicant respectfully submits that the claims are patentable over the art of record and that the application is in condition for allowance. Should the Examiner believe that anything further is desirable in order to place the application in condition for allowance, the Examiner is invited to contact Applicant's undersigned attorney at the telephone number listed below.

SEIDEL  
Appl. No. 09/600,260  
December 3, 2004

Prompt passage to issuance is earnestly solicited.

Respectfully submitted,

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